1347

July 19, 1948

Spruce budworm
LGL 1-4
1565

THE OREGON-SPRUCE-BUDWORM SPRAY PROJECT

RLF

Although I have had neither the opportunity nor the facilities to analyze the data taken on the Oregon-Spruce-Budworm Project, there are some fairly obvious results that I should like to comment upon briefly.

In the first place budworm mortality on all the sprayed plots is so uniformly high that comparisons between dosages or between plane and helicopter applications are not going to mean much.

sprayed later in the season

The airplane plots, sprayed at the rate of one gallon of D.D.T. in one gallon of fuel oil per acre, all showed a larval mortality of 99 percent plus. The two pounds of D.D.T. in two gallons of fuel oil could obviously be but little better. They too showed a mortality of 99 percent plus, and some were remarkably close to perfect.

On the helicopter plots, where one pound of D.D.T. in one gallon of fuel oil per acre was used, results were equally good with but two exceptions. On plot 10, sprayed in the evening instead of early morning as were all other plots, control appeared to be only about 96 percent effective. Plot 7 showed a mortality of 98 percent plus. All other similar dosages applied by helicopter gave a 99 percent plus mortality. The double or criss-cross flying appears to be no more effective than single flight lines.

On plot 12, where the helicopter applied $\frac{1}{2}$ pound of D.D.T. in $\frac{1}{2}$ gallon of fuel oil per acre, mortality was low. Results were spotty and erratic and apparently 50 percent or less of the larvae were killed on this plot where, through an error, only one-half the intended spray was applied.

On the check plots a heavy population of budworm larvae survived throughout the project. As far as we were able to determine, natural mortality during the summer larval stages appeared to be very low.

The control on this project is astonishingly good, but since we were dealing with large populations there can be little doubt regarding the effectiveness of the spray applications.

We found no trees on any of the plots (except 12) that were completely missed, by the spray. On a few other trees some surviving larvae indicated that some foliage had been missed, but these represented only fractional percentages of the total population and, of course, are all included in our above estimates.

It should be emphasized here that in no case do the surviving larvae on the sprayed plots represent a sufficiently large population to reinfest the plots this year. It should also be pointed out that most of the surviving larvae found on the sprayed trees are very small, parasitized larvae. In reality our control estimates are known to be quite conservative. There are several reasons for this that will be pointed out in a subsequent report.

No burning of herbaceous or other foliage was evident on this project.

Early morning airplane or helicopter applications of one pound of D.D.T. in one gallon of fuel oil per acre will definitely give highly satisfactory con-

trol of the spruce budworm in the mixed fir-pine forests of eastern Oregon, if directed against the late larval stages.

The contrast between trees on the sprayed and unsprayed areas is already striking. On the sprayed plots, new growth, especially on the Douglas fir, is greening up the trees again by covering the earlier feeding scars and red foliage. On unsprayed infested areas the bare twigs and reddish foliage of the firs are increasingly evident and they present a devastating scene. In some areas tree mortality is expected to be heavy this year.

Respectfully Submitted

J. A. Beal

J. A. Beal

cc: F.C.C. & Eaton
Ray Brown
Furniss
Beal